

PROPOSED

AMENDMENTS TO THE CLAIMS

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1. (Currently amended) A method for measurement of high temperatures of a process stream, the method comprising the steps of:
providing a thermocouple arranged in a thermowell, wherein a layer of catalytic material is deposited on and at least partly covers the thermowell; is at least partly covered by a layer of a catalytic material
conducting in the process stream at least one endothermic catalyzing steam reforming reaction, wherein the layer of catalytic material is being active in the at least one endothermic catalyzing steam reforming reaction; and
contacting the thermowell with a process stream during the endothermic catalyzing steam reforming reaction, to carry out the temperature measurement.

2. (Previously presented) The method according to claim 1, wherein a tip of the thermowell is covered by the catalytic material with a layer thickness of 0.2-5 mm.

3. (Previously presented) The method according to claim 1, wherein the thermowell is installed in a reactor wall by inserting the thermowell through a hole penetrating the reactor wall so that the tip of the thermowell is in contact with the process stream.

4. (Currently amended) A method for measurement of high temperatures of a process stream, the method comprising the steps of:
providing a thermocouple arranged in a thermowell, wherein the thermowell is at least partly covered by a layer of a catalytic material-being active in at least one endothermic catalyzing steam reforming reaction; and
contacting the thermowell with a process stream during the endothermic catalyzing steam reforming reaction, to carry out the temperature measurement.

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wherein the thermowell is installed in a reactor wall by inserting the thermowell through a hole penetrating the reactor wall so that the tip of the thermowell is in contact with the process stream and ~~The method according to claim 3,~~
~~wherein the tip of the thermowell is 20-50 mm behind an inner surface of the reactor wall.~~

5. (Currently amended) The method according to claim 1, wherein the process stream further undergoes the steam reforming reaction in a catalytic bed.

6. (Currently amended) A method for measurement of high temperatures of a process stream, the method comprising the steps of:

providing a thermocouple arranged in a thermowell, wherein the thermowell is at least partly covered by a layer of a catalytic material-being active in at least one endothermic catalyzing steam reforming reaction; and

contacting the thermowell with a process stream during the endothermic catalyzing steam reforming reaction, to carry out the temperature measurement,

wherein the process stream undergoes the steam reforming reaction in a catalytic bed and ~~The method according to claim 5,~~ wherein the temperature is measured upstream of the catalyst bed.

7. (Previously presented) The method according to claim 5, wherein the steam reforming reaction is carried out in an autothermal reformer.

8. (Canceled)

9. (Previously presented) The method according to claim 1, wherein the measured process stream has a temperature of 1000-1500° C.

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10. (Currently amended) A temperature measurement instrument for measuring the temperature of a process stream in which an endothermic catalyzing steam reforming reaction is conducted comprising a thermocouple inserted in a thermowell, wherein a layer of catalytic material is deposited on and at least partly covers the thermowell, and wherein the layer of catalytic material is at least partly covered by a layer of a catalytic material being active in at least one endothermic catalyzing steam reforming reaction.

11. (Previously presented) The method according to claim 2, wherein the layer thickness is 0.5-2 mm.

12. (Currently amended) A method for measurement of high temperatures of a process stream, the method comprising the steps of:

providing a thermocouple arranged in a thermowell, wherein a layer of catalytic material is deposited on and at least partly covers the thermowell; is at least partly covered by a layer of a catalytic material

conducting in the process stream at least one endothermic catalyzing steam reforming reaction, wherein the layer of catalytic material is being active in the at least one endothermic catalyzing steam reforming reaction;

cooling the thermowell by contacting the thermowell with a process stream during the endothermic catalyzing steam reforming reaction; and

carrying out temperature measurements.